

U.S. Serial No. 10/765,838
Amendment
Response to 8-2-05 OA

Atty. Docket No. 740165-372:

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application;

Please amend the claims as follows:

1. (Currently Amended): An electrically-driven steering lock device comprising:

a lock stopper able to move so as to approach a steering shaft;

a lock bar connected to the lock stopper and able to move integrally with the lock stopper, and in a state in which the lock stopper has been moved toward the steering shaft, the lock bar projects toward the steering shaft and engages with an engagement groove of the steering shaft and locks the steering shaft, and in a state in which the lock stopper has been moved toward a side opposite the steering shaft, the lock bar moves toward the side opposite the steering shaft and releases locking;

an urging means for urging device that urges the lock stopper toward the side opposite the steering shaft such that the lock bar is urged in a disengagement direction with respect to said engagement groove of said steering shaft;

a gear driven to rotate by driving force from a drive source;

a lock arm provided so as to be interlocked with the gear and so as to be engageable with the lock stopper, and due to forward rotation of the gear, the lock arm moves the lock stopper toward the steering shaft and holds the lock stopper and due to reverse rotation of the gear, the lock bar disengages the lock stopper such that the urging device urges the lock bar in said disengagement direction; and

a cam provided so as to be interlocked with the gear and so as to be engageable with the lock stopper, and due to reverse rotation of the gear, the cam moves the lock stopper toward the side opposite the steering shaft and holds the lock stopper to disengage the lock bar from said engagement groove of said steering shaft only when an urging force applied by said urging device is insufficient to disengage said lock bar from said groove.

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2. (Original): The electrically-driven steering lock device of claim 1, further comprising a lock body which is parallelepiped and at which a projecting portion is provided, and the projecting portion has a slide surface, and the lock stopper is provided so as to abut the slide surface.
3. (Original): The electrically-driven steering lock device of claim 2, wherein the lock stopper has a slide portion, and a plate-shaped engaging portion is provided so as to project at one end portion of the slide portion, and a plate-shaped connecting portion is provided at another end portion of the slide portion, and a hole is formed from the other end portion of the slide portion to a longitudinal direction intermediate portion of the slide portion.
4. (Original): The electrically-driven steering lock device of claim 3, wherein due to the slide portion of the lock stopper sliding along the slide surface of the projecting portion and being movable along the slide surface, the lock stopper can move so as to approach the steering shaft.
5. (Original): The electrically-driven steering lock device of claim 3, wherein the lock stopper has a projecting piece which projects toward a side opposite a direction in which the engaging portion projects, and the urging means includes an elastic spring provided between the projecting piece and the projecting portion of the lock body.
6. (Original): The electrically-driven steering lock device of claim 3, wherein the lock bar has a groove portion with which the connecting portion of the lock stopper can engage, and when the lock bar is connected to the lock stopper due to the connecting portion engaging with the groove portion, a distal end of a proximal end portion provided at the lock bar is fit-in in the hole of the lock stopper.
7. (Original): The electrically-driven steering lock device of claim 1, wherein the lock stopper and the lock bar are formed integrally.

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8. (Currently Amended): A modular antitheft device for a steering system comprising:

a lock body which is parallelepiped and is attachable to a steering post shaft of the steering system, the lock body having a slide surface;

a lock stopper provided so as to be able to slide while abutting the slide surface;

a lock bar able to move integrally with the lock stopper, and in a state in which the lock stopper has been moved toward a steering shaft, the lock bar projects toward the steering shaft and engages with the steering shaft and locks the steering shaft, and in a state in which the lock stopper has been moved toward a side opposite the steering shaft, the lock bar moves toward the side opposite the steering shaft and releases locking;

an urging device elastically urging the lock stopper toward the side opposite the steering post shaft such that the lock bar is urged in a disengagement direction with respect to said steering shaft;

a gear driven to rotate by driving force from a drive source;

a lock arm provided so as to be interlocked with the gear and so as to be engageable with the lock stopper, and due to forward rotation of the gear, the lock arm moves the lock stopper such that the lock stopper approaches the steering shaft, and holds the lock stopper, and due to reverse rotation of the gear, the lock arm disengages said lock stopper such that the urging device urges the lock bar in said disengagement direction; and

a cam provided so as to be interlocked with the gear and so as to be engageable with the lock stopper, and due to reverse rotation of the gear, after said lock arm disengages said lock stopper, the cam moves the lock stopper such that the lock stopper moves away from the steering shaft, and holds the lock stopper such that the cam disengages the lock bar from the steering shaft if the urging device fails to cause such disengagement.

9. (Original): The modular antitheft device of claim 8, wherein the lock body has a projecting portion, and the projecting portion has the slide surface.

10. (Original): The modular antitheft device of claim 9, wherein the lock stopper has a slide portion, and a plate-shaped engaging portion is provided so as to project at one end portion of the slide portion, and a plate-shaped connecting portion is provided at

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another end portion of the slide portion, and a hole is formed from the other end portion of the slide portion to a longitudinal direction intermediate portion of the slide portion.

11. (Original): The modular antitheft device of claim 10, wherein, due to the slide portion of the lock stopper sliding along the slide surface of the projecting portion, the lock stopper can move so as to approach the steering shaft.

12. (Original): The modular antitheft device of claim 10, wherein the lock stopper has a projecting piece which projects toward a side opposite a direction in which the engaging portion projects, and the urging device includes a spring provided between the projecting piece and the projecting portion of the lock body.

13. (Original): The modular antitheft device of claim 10, wherein the lock bar has a groove portion with which the connecting portion of the lock stopper can engage, and when the lock bar is connected to the lock stopper due to the connecting portion engaging with the groove portion, a distal end of a proximal end portion provided at the lock bar is fit-in in the hole of the lock stopper.

14. (Original): The modular antitheft device of claim 8, wherein the lock stopper and the lock bar are formed integrally.

15. (Currently Amended): An antitheft system for a vehicle, comprising:
a lock body which is parallelepiped and is attachable to a steering ~~post~~ shaft of the vehicle, the lock body having a slide surface;
a lock stopper provided so as to be able to slide while abutting the slide surface;
a lock bar able to move integrally with the lock stopper, and in a state in which the lock stopper has been moved toward a steering shaft, the lock bar projects toward the steering shaft and engages with the steering shaft and locks the steering shaft, and in a state in which the lock stopper has been moved toward a side opposite the steering shaft, the lock bar moves toward the side opposite the steering shaft and releases locking;

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an urging device elastically urging the lock stopper toward the side opposite the steering shaft such that the lock bar is urged in a disengagement direction with respect to said steering shaft;

a gear driven to rotate by driving force from a drive source;

a lock arm provided so as to be interlocked with the gear and so as to be engageable with the lock stopper, and due to forward rotation of the gear, the lock arm moves the lock stopper such that the lock stopper approaches the steering shaft, and holds the lock stopper, and due to reverse rotation of the gear, the urging device urges the lock bar in said disengagement direction; and

a cam provided so as to be interlocked with the gear and so as to be engageable with the lock stopper, and due to reverse rotation of the gear, and after the lock arm disengages said lock stopper, the cam moves the lock stopper such that the lock stopper moves away from the steering shaft, and holds the lock stopper such that the cam disengages the lock bar from the steering shaft if the urging device fails to cause the lock bar to disengage from the steering shaft.

16. (Original): The antitheft system of claim 15, wherein the lock body has a projecting portion, and the projecting portion has the slide surface.

17. (Original): The antitheft system of claim 16, wherein the lock stopper has a slide portion, and a plate-shaped engaging portion is provided so as to project at one end portion of the slide portion, and a plate-shaped connecting portion is provided at another end portion of the slide portion, and a hole is formed from the other end portion of the slide portion to a longitudinal direction intermediate portion of the slide portion.

18. (Original): The antitheft system of claim 17, wherein, due to the slide portion of the lock stopper sliding along the slide surface of the projecting portion, the lock stopper can move so as to approach the steering shaft.

19. (Original): The antitheft system of claim 17, wherein the lock stopper has a projecting piece which projects toward a side opposite a direction in which the engaging

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portion projects, and the urging device includes a spring provided between the projecting piece and the projecting portion of the lock body.

20. (Original): The antitheft system of claim 17, wherein the lock bar has a groove portion with which the connecting portion of the lock stopper can engage, and when the lock bar is connected to the lock stopper due to the connecting portion engaging with the groove portion, a distal end of a proximal end portion provided at the lock bar is fit-in in the hole of the lock stopper.